7.0 Cumulative Effects

7.1 Introduction

Cumulative effects include the effects of future State, tribal, local, or private actions, not involving a Federal action, that are reasonably certain to occur in the action area (50 CFR 402.14 (g) (3)). Cumulative effects exist only when they are reasonably certain to occur. A key factor in determining if an action meets the definition of a cumulative action is the "reasonably certain to occur" phrase. To meet this standard, there must exist more than a mere possibility that the action may proceed.

Past actions of the groups listed below are included in Chapter 4. Reclamation coordinates with these groups as requested and within Reclamation's authorizations and funding. This section provides a brief history, past accomplishments, and future efforts for each group. The brief history and past accomplishments are included here because the future efforts are incremental steps of past accomplishments.

7.2 SONCC Coho Salmon

7.2.1 Rogue River Basin

Local Coordinating Groups

Irrigation Point of Diversion (IPOD) and Little Butte/Bear Creek Water Management Project

In 1999, in response to the issue of poor water quality at their intake facility, the Medford Water Commission began examining the potential of increasing stream flows in Little Butte Creek. The IPOD group was formed to generate a proposal to improve water quality.

In 2000, it was recognized that the scope of the project had grown well beyond that of the original IPOD project both geographically and functionally. The name was changed to the Little Butte/Bear Creek Water Management Project.

The Little Butte/Bear Creek Water Management Project is a collaborative effort of diverse stakeholders to improve the health of the Little Butte Creek and Bear Creek systems and increase the effectiveness and efficiency of the three local irrigation districts: MID, TID, and RRVID. Their goals are to increase instream flows in Little

Butte Creek and Bear Creek and tributaries and to improve irrigation efficiency within the three irrigation districts.

The work accomplished to date, includes the development of a set of alternatives for meeting the project goals, development of a hydrology model to ascertain the potential of each alternative, development of key stakeholder involvement, and initiation of the process of determining the feasibility of using reclaimed effluent (Mason 2002).

The Little Butte/Bear Creek Water Management Project future plans include:

- Piping and lining canals,
- Increasing the storage capacity of selected reservoirs,
- Installation of a pumping station to provide access to water from the Regional Wastewater Reclamation Facility and water stored in Lost Creek Reservoir

These potential projects are at the planning stage with future steps to include a feasibility study and environmental compliance documents.

A specific pilot project is planned to use reclaimed effluent from the Medford Regional Water Reclamation Facility for irrigation purposes. This project will pump reclaimed effluent water to approximately 500 acres in the RRVID. This pilot project should be functional in 2003 or 2004.

Rogue Basin Coordinating Council (RBCC)

RBCC was formed in 1998 to coordinate and promote the work of eight watershed councils within the Rogue River basin. Communities in the basin range from Gold Beach on the Pacific Ocean to Trail, about 155 miles upstream. To support the RBCC, the Rogue Basin Fish Access Team (RBFAT) was formed to identify and prioritize fish passage barriers within the basin and form a strategic plan for their removal or modification. The Strategic Plan was completed in 2000 and RBFAT now serves as an advisory committee to RBCC.

The mission of RBFAT is to improve fish passage throughout the Rogue basin. The first step in fulfilling this mission was the generation of a biologically prioritized list of the over 800 fish passage barriers in the Rogue basin. The second step was the development of a Strategic Plan for addressing these barriers. Rogue basin Coordinating Council is now working on the third step of establishing a Basin Fund for the removal or modification of the barriers.

Specific timeframes to accomplish these goals have not been established.

The Rogue Valley Council of Governments (RVCOG)

RVCOG is a voluntary association of 15 local governments and six other jurisdictions in southwestern Oregon's Jackson and Josephine Counties.

RVCOG, Bear Creek Watershed Council (BCWC), and Jackson Soil and Water Conservation District have worked closely with Federal, state, and local agencies as well as water users and other interested parties to assist in the development and implementation of strategies for restoration, enhancement, and protection of the Bear Creek Watershed.

In 1995, RVCOG completed the Bear Creek Watershed Assessment and Action Plan, Phase I. Work on Phase II of this project began in 2001 and is intended to expand the assessment to incorporate information on tributaries, water quality, fishery habitat conditions, and address federal and state regulatory mandates implemented in recent years. The report has not yet been completed due to lack of funding.

RVCOG will work with irrigation districts to conduct a water conservation and fish protection education program. The program will identify appropriate participants, conduct neighborhood workshops, host an irrigation fair/trade show, and produce an informational pamphlet.

Jackson County Water Needs and Availability Project (WNAP)

WNAP has three goals: to evaluate the availability of water for future uses, to determine the amount of water that will be needed for future uses, and to develop means to ensure that there will be enough water available in the future to meet future water use needs. The first two goals are based on the recently completed Jackson County Water Resources Study. The third goal includes developing new sources of water or water storage through construction and conservation and redistribution of existing water. WNAP's area of work is Jackson County. All types of water uses will be evaluated: agricultural, instream, municipal and industrial. Groundwater is not being evaluated.

Rogue Aggregates Inc.

The project proposes to prevent pit capture by the Rogue River of abandoned floodplain gravel pits by constructing four stream barbs to arrest bank erosion. The project will protect fish habitats and water quality. The implementation of the project will help prevent future channel avulsion and resulting impacts to fisheries and habitats. Oregon Watershed Enhancement Board provided funding in 2002 for post-construction modeling, trucking of rock, barb construction preparation of construction specifications, monitoring, and fiscal management.

Oregon Department of Fish and Wildlife

PacifiCorp requested a waiver for upstream fish passage at the North Fork Diversion Dam because passage would provide little biological value to native fish. A series of waterfalls about a mile downstream of the dam naturally prevent fish passage, and the area immediately below the dam has low quality fish habitat because it is dominated by bedrock with sparse amounts of potential spawning gravel.

The Fish and Wildlife Commission approved a waiver to fish passage under fish migration laws at the North Fork Dam in the upper Rogue River because the hydropower company has agreed to improve fish passage at Little Butte Mill Dam in the Rogue basin.

As a result of the waiver, PacifiCorp will pay about $175,000 to improve a non-functional fish ladder, notch the dam crest, and modify the channel to improve fish passage during low flows at Little Butte Mill Dam. The project, located near Eagle Point, will improve fish accessibility to 68 stream miles above Little Butte Dam for rainbow trout, cutthroat trout, Chinook, steelhead, coho, Pacific lamprey, Pacific brook lamprey, and Klamath small scale sucker. If fish passage was provided at North Fork Dam, only an additional 0.9 miles of stream would be available to resident rainbow and cutthroat trout.

Local Irrigation Districts

The districts are planning fish passage improvements at Larson Creek, a tributary of Bear Creek. Environmental compliance on new fish facilities for North and South Fork Little Butte has been completed. The South Fork fish screens have been completed and the ladder is schedule for construction in the summer of 2003. The North Fork screens are scheduled for construction in the fall of 2003 with the construction of the fish ladder following in 2004.

7.2.2 Klamath River Basin

The action area in Klamath River basin, for purposes of this analysis, encompasses aquatic habitat in Klamath River downstream from Iron Gate Dam. Cumulative effects of State and private activities on anadromous fish species in Klamath River basin are significant. Dominant land-use activities on non-federal lands adjacent to the action area are forestry and agriculture. Significant improvements in SONCC coho salmon production within non-Federal lands are unlikely without changes in forestry, agriculture, and other practices that occur in aquatic and riparian habitats.

Return flows coupled with consumptive uses of water; depending on land-use practices, irrigation methods, use of agrichemicals, number of reuses, and erosion in agricultural areas contributes to increased water temperature and increased nutrient and sediment loads in reservoirs and streams in the upper Klamath River basin.

Resulting lower streamflow and poor water quality may negatively affect listed species.

Poor water quality in upper Klamath basin and Klamath River is the result of cumulative effects in upper Klamath River basin that lead to nutrient enrichment. This poor water quality is independent of and unaffected by the proposed action. Additional cumulative effects in upper Klamath River basin negatively affecting suckers include: entrainment, introduced fishes, barriers to upstream passage, habitat loss, and habitat degradation.

Cumulative effects associated with the Klamath Project and discussed in Reclamation's Klamath Basin Project BA (2002) and NMFS' Klamath Basin Biological Opinion (2002) are included by reference.

In September 2002, the California Fish and Game Commission (Commission) voted to put northern California coho salmon on the state's threatened species list under the California Endangered Species Act (CESA). The area extends from Punta Gorda north to the Oregon state line. Although this CESA listing for coho salmon north of San Francisco and the associated take prohibitions and limitations will theoretically provide an added level of protection of these fish in the Klamath River basin, it is difficult to quantify the associated survival benefit.

The Commission recently established the Shasta-Scott Recovery Team (SSRT) as part of an effort to develop a recovery strategy for coho salmon in California. The SSRT represents a broad cross section of interests with the intent of developing a pilot program of recovery actions related to agriculture and agricultural water use in the Shasta and Scott River valleys. The pilot program will become part of a range-wide recovery strategy for coho salmon that will be presented to the California Fish and Game Commission by August 2003.

Until improvements in non-Federal land management practices are actually implemented, Reclamation assumes that future private and State actions will continue at similar intensities as in recent years.

7.3 Lost River and Shortnose Suckers

Much of the land in the Jenny Creek watershed is federally owned. Proposed federal actions that may affect listed species will undergo section 7 consultations and thus are not considered in this section. Remaining land is privately owned and is mostly forested with mixed conifers and grassland/meadow. Few people live in the area. Reclamation anticipates that most of the land will be used as it has in the past as range (grazing) and forest (logging).

Grazing in the Jenny Creek watershed may destabilize streambank vegetation resulting in erosion, siltation, reduced quality of spawning areas, increased water temperatures, wider and shallower stream channels, and lowered water tables. However, because endangered Lost River and shortnose suckers may only occupy the lower two miles of Jenny Creek for a short period of time for spawning, impacts are likely small. Conditions of rangelands are anticipated to continue to improve with local proactive management.

Forestry practices on private lands may also contribute to water quality declines in the Jenny Creek watershed (sedimentation, nutrient loading). Reclamation does not consider future forestry practices a major threat in this watershed because commercial forest comprises a small area, is located in the upper reaches of the watershed, and timber has been infrequently harvested.

Degraded water quality resulting from grazing and logging on private lands in the Jenny Creek watershed including increased temperatures, sediment, and nutrients are likely to have a small cumulative effect on water quality in Iron Gate Reservoir because of the small contribution of this tributary to the overall inflow from the Klamath River.

Introduced fishes found in the Jenny Creek watershed include: rainbow trout, golden shiner, brown bullhead, black crappie, largemouth bass, green sunfish, and pumpkinseed. They are likely to continue to persist in the watershed. However, most of these species already occupy Iron Gate Reservoir and are likely to continue to prey on and compete with endangered suckers.

Transportation of hazardous materials along roadways in the Jenny Creek watershed and use of herbicides and pesticides appear to be a small risk owing to their infrequent presence in the watershed.

7.4 Northern Spotted Owl

The loss of spotted owl habitat due to future timer harvest, land development, recreation, barred owl ranged expansion, and forest fires will continue to be problematic for this species recovery.

7.5 Bald Eagle

The bald eagle population appears to be rebounding in Oregon and in the Rogue Valley. However, timber harvest, land development, and especially increased recreation are factors working against bald eagle recovery.

7.6 Gentner's Fritillary

The species is threatened by a variety of factors including habitat loss associated with rapidly expanding residential and agricultural development (Federal Register 67:70452). Reclamation is unaware of any scheduled state, private, or other actions that would affect the species.

7.7 Vernal Pool Species

7.7.1 Factors Influencing Vernal Pools and Associated Species

Human population growth in Jackson County is occurring at an extremely fast rate; much of this growth, and the resulting development, is taking place near Medford and White City in the heart of the Agate Desert. Development in and around vernal pools will affect listed species dependent upon vernal pool habitat.

The Rogue Valley Council of Governments is leading an effort to develop a comprehensive Wetland Conservation Plan (WCP). Implementation of the WCP is dependent upon funding. The comprehensive WCP is designed to streamline permit requirements, minimize permitting costs, and provide certainty and consistency in permit conditions by adopting a clear standard for permit issuance. Under the WCP, USACE issues a Section 404, Special Area Management Plan permit and Oregon Division of State Lands issues a special wetland fill permit. In order to ensure that any habitat destruction allowed by the plan complies with ESA, the USFWS must review and approve the plan.

Vernal pool habitat will be affected as a result of implementation of the comprehensive WCP being developed by the Rogue Valley Council of Governments. The WCP designates vernal pool complex habitat areas into three resource categories:

- Development for areas earmarked for future development with expedited permitting
- Protection for areas to be reserved almost exclusively for habitat preservation
- Incentive for areas where existing and planned land uses are compatible with habitat conservation.

Of the 7,719 acres of original vernal pool complex habitat remaining in this area, 578 acres (7.5 percent) are currently designated development, 2,011 (26 percent) acres are designated protection, and 5,130 acres (66.5 percent) are designated incentive. This is likely a minimum estimate for vernal pool complexes that will be lost to development activities over the next decade (Cam Patterson 9/5/2001, pers. comm.).

7.7.2 Large-Flowered Woolly Meadowfoam

Vernal pool habitat, and hence large-flowered woolly meadowfoam habitat, will be affected as a result of implementation of the comprehensive WCP being developed by the Rogue Valley Council of Governments.

Of the 3,129 acres of large-flowered woolly meadowfoam habitat remaining in the Agate Desert, 61 acres (1.9 percent) are in the development category, 1,708 acres (54.6 percent) are in the protection category, and 1,360 acres (43.5 percent) are in the incentive category. The 61 acres slated for development would likely be permanently lost and the fate of the 1,360 acres in the incentive category may depend on funding of conservation incentive programs. Because the WCP is in draft form at this time, these acreage figures are preliminary.

7.7.3 Cook's Lomatium

Vernal pool habitat, and hence Cook's lomatium habitat, will be affected as a result of implementation of the comprehensive Wetland Conservation Plan being developed by the Rogue Valley Council of Governments.

Of the 2,127 acres of Cook's lomatium habitat remaining in the Agate Desert, 130 acres (6.1 percent) are in the development category, 1,468 acres (69 percent) are in the protection category, and 529 acres (24.9 percent) are in the incentive category. Because the WCP is in draft form at this time, these acreage figures are preliminary.

7.7.4 Vernal Pool Fairy Shrimp

Vernal pool habitat, and hence vernal pool fairy shrimp, will be affected as a result of implementation of the comprehensive WCP being developed by the Rogue Valley Council of Governments.

Of the 3,591 acres of vernal pool fairy shrimp habitat remaining in the Agate Desert, 79 acres (2.2 percent) of are in the development category, 1,694 acres (47.2 percent) are in the protection category, and 1,818 (50.6 percent) are in the incentive category. The 79 acres slated for development would likely be permanently lost and the fate of the 1,818 acres in the Incentive category may depend on funding of conservation incentive programs. Because the WCP is in draft form at this time, these acreage figures are preliminary.